

### **REMARKS**

Claims 25-35 and 37-43 are pending herein. By this Amendment, the specification is amended; non-elected Claim 36 is canceled, without prejudice or disclaimer; and new Claim 43 is added. Support for the new claim is found in the specification at, *inter alia*, page 6, line 31 - page 7, line 17 and page 8, lines 25-31. No new matter is added by this Amendment.

#### **I. RESTRICTION REQUIREMENT**

Applicants affirm the election of Group II (Claims 27-35 and 37-38) with traverse. Applicants respectfully maintain that the Restriction Requirement is improper for the following reasons:

##### **A. Group II and Group I**

Elected Group II and non-elected Group I (Claims 25-26) are related as product and process of making. Pursuant to MPEP 806.05(f), a process of making and a product made by the process can be shown to be distinct inventions if: (A) the process *as claimed* is not an obvious process of making the product and the process *as claimed* can be used to make other and different products; or (B) the product *as claimed* can be made by another and materially different process.

The Office Action states that the product as claimed can be made using diammonium sulfate. Applicant respectfully asserts that this is not an example of a materially different process. In fact, the process recited in non-elected Group I and the elected product *as claimed* involve the same mechanism in which a diammonium group (e.g., a diammonium phosphate group) binds to a petroleum polymer. Elected product Claims 29-30 recite that the product may be made using a diammonium salt, such as diammonium phosphate or diammonium sulfate. In addition, elected product Claim 27

recites that the product may be made with diammonium phosphate, which is used in non-elected method Claims 25-26 (Group I). Reconsideration and withdrawal of the Restriction Requirement between elected Group II and non-elected Group I are respectfully requested.

B. Group II and Groups IV and V

Elected Group II and non-elected Groups IV and V are related as product and process of using. According to MPEP 806.05(h), a product and a process of using the product can be shown to be distinct inventions if: (A) the process of using *as claimed* can be practiced with another materially different product; or (B) the product *as claimed* can be used in a materially different process.

The Office Action states that the product as claimed can be physically blended into a flammable polymeric material as a flame-proofing agent. This is not an example of a materially different process. In fact, this example is similar to the claimed processes recited in Groups IV and V to provide fire retardant properties to a product. Moreover, Claims 39-40 (Group IV) and Claims 41-42 (Group V) depend on elected Claims 27 and 29, respectively. Accordingly, Applicant respectfully asserts that non-elected Claims 39-42 (Groups IV and V) may be rejoined pursuant to MPEP 821.04. Reconsideration and withdrawal of the Restriction Requirement between elected Group II and non-elected Groups IV and V are respectfully requested.

II. FORMAL MATTERS

The Preliminary Amendment was objected to as assertedly introducing new matter into the disclosure. However, the amendment of the specification to recite that the fire retardant composition may be “insoluble in water” is supported by original Claim 24 in

the grandparent application, U.S. Serial No. 09/702,777, now U.S. Patent No. 6,524,653 B1. Reconsideration and withdrawal of the objection are respectfully requested.

### III. REJECTIONS UNDER 35 U.S.C. 102(b)

Claims 27-35 and 37-38 were rejected under 35 U.S.C. 102(b) as anticipated by Berte' et al. (U.S. Patent No. 5,861,456). This rejection is respectfully traversed.

Berte' discloses a composition of polymers or copolymers of unsaturated carboxylic acids partially or completely neutralized, a process for the preparation thereof, and use thereof as thickening agents (Abstract). The Office Action asserts that Examples 2-3 of Berte' disclose a thickening composition containing (a) a cross-linked copolymer of acrylic acid; and (b) polyethylene glycol that becomes cross-linked by the addition of (c) diammonium phosphate (Example 2) or diammonium sulfate (Example 3).

First, the process of Berte' requires using a solvent (col. 4, lines 35-43). Significantly, none of the solvent systems described in Berte' disclose water, as recited in Claims 27 and 29.

Second, although the Berte discloses diammonium phosphate or diammonium sulfate in Examples 2-3, Berte does not in any way disclose a cross-linking reaction wherein a diammonium group from a diammonium salt (e.g., diammonium phosphate) is bound to a petroleum polymer and cross-linked, as recited in Claims 27, 29, and 37. To the contrary, Berte' describes no such cross-linker. Finally, Berte' discloses only compositions useful as thickeners. There is no teaching or suggestion that any of the compositions would have any utility beyond thickening, especially with regard to flame retardancy. Accordingly, because Berte' does not disclose each and every element of the claimed fire-retardant petroleum composition, Claims 27-35 and 37-38 are not anticipated. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 27-31, 33, 35, and 37-38 were rejected under 35 U.S.C. 102(b) as anticipated by Cermak et al. (U.S. Patent No. 4,080,160). This rejection is respectfully traversed.

Cermak discloses that the formation of a film on dyeing equipment is reduced by incorporating a mono-sulphated oleic acid amide in an aqueous pigment dispersion (Abstract). The Office Action asserts that Examples 2-3 shows the use of diammonium phosphate as a cross-linking agent for copolymers in an aqueous dispersion.

However, the chemical reaction described in Cermak is a catalytic reaction. Important to this catalytic distinction is the fact that diammonium phosphate is specifically described as “a catalyst.” See col. 2, lines 38-47. By definition, a catalyst invigorates a chemical reaction, but once the reaction is complete, the catalyst is not incorporated into the reacted product. Nowhere does Cermak disclose the claimed cross-linking mechanism or the functionality of the cross-linker. According to the present invention, diammonium salts, such as diammonium phosphate, contain constituents or groups that are expressly bound to a petroleum polymer and cross-linked. Cermak does not disclose a cross-linking reaction wherein any a diammonium group from a diammonium salt is bound to a petroleum polymer and cross-linked, as recited in Claims 27, 29, and 37.

Finally, Cermak in no way discloses fire retardancy or any chemical properties related to the phosphorous contained in diammonium phosphate. To the contrary, Cermak discloses solely a fixing pigment for textiles, a very limited and specific utility. Because Cermak does not disclose each and every element of the claimed fire-retardant petroleum composition, Claims 27-31, 33, 35, and 37-38 are not anticipated. Reconsideration and withdrawal of the rejection are respectfully requested.

#### IV. REJECTIONS UNDER 35 U.S.C. 103(a)

Claim 32 was rejected under 35 U.S.C. 103(a) as unpatentable over Cermak et al. This rejection is respectfully traversed.

As noted, Cermak is a catalytic reaction and discloses diammonium phosphate as “a catalyst.” Cermak does not teach or suggest a cross-linking reaction wherein a diammonium group from a diammonium salt is bound to a petroleum polymer and cross-linked, as recited in Claims 27, 29, and 37. Further, Cermak does not teach or suggest fire retardancy or any chemical properties related to the phosphorous contained in diammonium phosphate. Accordingly, it would not have been obvious for one of ordinary skill in the art to make the claimed fire-retardant petroleum composition in view of the teachings of Cermak. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 27-35 and 37-38 were rejected under 35 U.S.C. 103(a) as unpatentable over Lester et al. (U.S. Patent No. 4,076,547). This rejection is respectfully traversed.

Lester discloses a polymeric molding composition (Abstract). The Examiner acknowledges that Lester does not disclose a petroleum polymer having a hydroxyl group being cross-linked with a diammonium salt. However, the Examiner asserts that it would have been obvious to use “the broad disclosure of the patent” as motivation to cross-link a petroleum polymer having a hydroxyl group with a cross-linking agent such as diammonium phosphate or diammonium sulfate.

Lester does not teach or suggest a covalent cross-linking mechanism. To the contrary, Lester focuses exclusively upon “ionic bonding,” which is, by definition, a very weak bonding system, almost as weak as a hydrogen bond. Of the 17 examples set forth in Lester, not one of them forms a covalent cross-linking mechanism. To the contrary, each results merely in a gel formation with ionic bonding.

In addition, Lester does not disclose whether the ionic bonding mechanism would impart any particular properties to the material other than those necessary for the structural integrity of the molded product disclosed in that patent. The sole object of the Lester invention is for crafters to be able to mold products easily and at room temperature. In contrast, the claimed invention involves heat and is directed to a product in which constituent materials are cross-linked for the express purpose of imparting flame retardant qualities to the resulting polymer. Accordingly, it would not have been obvious for one of ordinary skill in the art to make the claimed fire-retardant petroleum composition in view of the teachings of Lester.

Applicant respectfully notes that the legal standard of obviousness requires a fact-based inquiry. Simply referring to the "broad disclosure" of Lester to support a conclusion of obviousness is impermissible. Accordingly, Applicant requests a detailed and specific reference to the teaching of Lester which the Examiner asserts supports a motivation to cross-link a petroleum polymer with a diammonium salt. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 27-33, 35, and 37-38 were rejected under 35 U.S.C. 103(a) as unpatentable over Lorenz et al. (U.S. Patent No. 6,482,875) or Lorenz et al. (WO 98/50617). This rejection is respectfully traversed.

Lorenz discloses a thermoplastic material containing a binder, wherein the binder contains at least 2 different polyacrylates (Abstract). The Examiner acknowledges that Lorenz does not disclose an example in which a petroleum polymer having a hydroxyl group is cross-linked with a diammonium salt. However, the Examiner asserts that it would have been obvious to use "the broad disclosure" of this patent as motivation to actually cross-link a petroleum polymer having a hydroxyl group with a cross-linking agent.

Lorenz discloses the use of diammonium phosphate solely as a catalyst, and in connection with discussion of a number of other salts for use as a catalyst. Specifically, Lorenz has no teaching or suggestion of the claimed cross-linking, including the text cited by the Examiner (col. 12, lines 18-29). According to the present invention, the phosphorous group contained in the diammonium phosphate becomes integrally bound to the petroleum polymer as a part of the cross-linking of the petroleum polymer. Such a cross-linking which incorporates a constituent or group from a diammonium salt is not obvious in view of the teachings of Lorenz.

Further, Lorenz discloses that the polyacrylates may be “functionalized”. However, there is no teaching or suggestion that such functionalization would include hydroxyl groups, a component in the cross-linking mechanism of the claimed invention. To the contrary, in col. 7, line 19, Lorenz *teaches away* from hydroxyl groups as the functional group. In addition, at col. 6, lines 63-67, Lorenz also *teaches away* from the instant invention by indicating that the role of the inorganic salts (such as diammonium phosphate) is to “coagulate and precipitate” the monomers, as opposed to actively becoming incorporated into the cross-link. Thus, there is no recognition or appreciation that a phosphate source such as diammonium phosphate could be used as a cross-linking agent, in which the phosphate itself would be bound to a petroleum polymer and cross-linked. Accordingly, it would not have been obvious for one of ordinary skill in the art to make the claimed fire-retardant petroleum composition in view of the teachings of Lorenz.

As noted, simply referring to the “broad disclosure” of Lorenz to support a conclusion of obviousness is impermissible. Applicant requests a detailed and specific reference to the teaching of Lorenz which the Examiner asserts supports a motivation to

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cross-link a petroleum polymer with a diammonium salt. Reconsideration and withdrawal of the rejection are respectfully requested.

#### V. DOUBLE PATENTING REJECTION

Claims 27-35 and 37-38 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-9, 13-16, 20, 24, and 62 of copending application no. 10/426,733. To advance and expedite prosecution, a Terminal Disclaimer is filed herewith rendering the double patenting rejection moot. Reconsideration and withdrawal of the rejection are respectfully requested. Applicant notes the comment in numbered paragraph 20 of the Office Action. However, Applicant's representative is not the attorney of record for application no. 10/426,733.

#### VI. CONCLUSION

In light of the foregoing remarks, this application is in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application.



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Enclosed is a check for \$65.00 for the disclaimer fee. Any additional fees should be charged to, or any overpayment in fees should be credited to, Deposit Account No. 501032 (Docket #WHJ-100-2).

Respectfully submitted,




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Date: January 7, 2005

Enclosure:  
Check for \$65.00 (disclaimer fee-small entity)

<p align="center"><b>CERTIFICATE OF MAILING</b></p> <p>I hereby certify that this correspondence dated <u>1/7/05</u> is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on <u>1/7/05</u>.</p> <p align="right"> _____ HOLLANDER LAW FIRM, P.L.C. Suite 305 10300 Eaton Place Fairfax, Virginia 22030  Date: <u>1/7/05</u></p>
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